Name of Organization: Center for Clean Air Policy

Type of Organization: Other

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Project Title: Options for Reducing Toxics in Transportation Planning

Project Category: Pollution Prevention and Reduction - BNS

Rank by Organization (if applicable): 0

Total Funding Requested ($): 49,990 **Project Duration:** 1 Years

Abstract:

Despite increases in vehicle miles traveled, we have seen some successes in reducing emissions of lead, oxides of nitrogen and volatile organic compounds from the transportation sector. These successes resulted from a combination of factors: changes in fuel composition, technological requirements, and advances in transportation planning. Using these and other methods, there may be opportunities for similarly reducing toxic pollutants that are of concern from both an environmental and public health perspective, such as benzo[a]pyrene, dioxins/furans, and mercury. In this project we propose to conduct an analysis of opportunities for reducing persistent, bioaccumulative toxic emissions from the transportation sector. Our emphasis will be on opportunities to address toxics through existing national and local transportation planning processes. We will also review the available literature on reducing toxics through technological and fuel mix innovations.

Geographic Areas Affected by the Project

States:

- [x] Illinois
- [ ] Indiana
- [ ] Michigan
- [ ] Minnesota
- [ ] New York
- [ ] Pennsylvania
- [ ] Wisconsin
- [ ] Ohio

Lakes:

- [ ] Superior
- [ ] Huron
- [x] Michigan
- [ ] Erie
- [ ] Ontario
- [ ] All Lakes

Geographic Initiatives:

- [x] Greater Chicago
- [ ] NE Ohio
- [ ] NW Indiana
- [ ] SE Michigan
- [ ] Lake St. Clair

Primary Affected Area of Concern: Grand Calumet River/IHC, IN

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

According to EPA's 1997 National Air Quality and Emissions Trends Report, the transportation sector contributes 20% of toxic emissions nationally and 40% of the priority HAPs affecting urban areas on a national basis. Mobile source HAPs may be even more significant when viewed from a risk perspective. Based on 1990 data from the CEP project, Environmental Defense (ED) estimates that mobile sources contribute about half of the cancer and non-cancer risks (for example, reproductive toxicity) associated with HAPs. In Illinois the amount of risk attributable to mobile sources is higher--53% and 64%, respectively, for cancer and non-cancer risks. Several of the toxic pollutants emitted by the transportation sector, including benzo[a]pyrene, dioxins/furans, and mercury, are Level I persistent toxic substances under the Binational Toxics Strategy. The concerns about toxics emissions from the transportation sector in Chicago are evidenced by the inclusion of this sector in the Regional Dialogue on Clean Air and Redevelopment sponsored by the Delta Institute and the Metropolitan Council of Mayors. Also, the Grand Calumet River Area of Concern (which passes 15 miles south of downtown Chicago) documentation cites atmospheric deposition of toxics substances (e.g., dioxin) and urban runoff (e.g., PAHs) as contributing to impairment of beneficial uses.

Some progress has already been made in reducing toxic substances. In the early 1990s, an estimated 16% reduction in toxic emissions between 1993 and 1996 was achieved nationally through the use of reformulated fuels. Federal Tier 2 standards may achieve some reductions in toxics through its emphasis on reducing NOx and particulate matter. Moreover, new vehicle and fuel standards are being considered in conjunction with upcoming diesel regulations. Specifically, EPA is expected to regulate benzene and diesel particulate matter in April of 2000. It is possible that state pressure will lead to additional steps to reduce acetaldehyde, 1,3, butadiene, and formaldehyde under section 202(l) of the Clean Air Act.

Despite existing and potential new efforts to reduce emissions, additional work is needed to compensate for increases in vehicle miles traveled and to better address the persistent and bioaccumulative toxics that are most likely to adversely affect the Great Lakes. The Center proposes to achieve these objectives through a comprehensive investigation and analysis of options for reducing toxic emissions within existing transportation planning processes.

There is an existing structure for addressing criteria pollutants from mobile sources, the Metropolitan Planning Process. The US EPA and the US Federal Highway Administration jointly issue regulations which, among other things, require that all transportation plans, projects and programs are consistent with state air quality goals. In essence, transportation emissions must remain below a mobile source budget set in the State Implementation Plan for air quality. If an area fails to demonstrate that transportation emissions are within the budgeted amount, federal transportation funding can be withheld. This process only applies to areas that are designated nonattainment for criteria pollutants such as oxides of nitrogen and volatile organic compounds.

Examples of policy opportunities we will analyze for incorporation of toxics into the transportation planning process include:

- Exploring the possibility of an additional planning guidance specifically addressing air toxics related to transportation as a planning criterion.

- Investigating using the MPO forum as a regional body to address toxics from transportation as associated with increasing vehicle miles traveled.

- Investigating the value and feasibility of incorporating a toxics reduction goal from transportation into the Regional Long-Range transportation Plan.

Proposed Work Outcome:

This project aims to identify, assess and recommend opportunities to reduce toxic emissions from the transportation sector, especially through existing transportation planning processes. The Center's approach is as follows:

I. Data Collection

First, the Center will collect and summarize available information on the contribution of the transportation sector to benzo[a]pyrene, dioxins/furans, mercury and other toxic pollutants that are believed to adversely affect the Great Lakes. We will investigate results of the 1990 and 1996 CEP as well as available monitoring data on emissions from tailpipes, refueling, and other transportation-related releases. We will also review studies completed by state agencies such as the California Environmental Protection Agency and the Minnesota Pollution Control Agency.

The outputs of this first assessment will be a better understanding of the transportation sector's contribution to toxic pollution in the Great Lakes. We hope to have an estimate of the total contribution as well as the various components, including the percent from refueling, tailpipe emissions, and other sources as well as a sense as to the amount contributed by gasoline- and diesel-powered sources. If possible, our assessment will include available information on the effects of different speeds, motors, and other factors that influence toxic emissions from the transportation sector as well as the expected reductions in persistent and bioaccumulative toxics from new transportation policy measures such as Tier 2.

II. Identification of Policy Options for Addressing Toxics from Transportation

The Center will begin our analysis by identifying options for addressing toxic pollutants within national guidance for transportation planning in metropolitan areas--the Metropolitan Planning Process, or MPO. This first analysis will apply broadly to metropolitan areas that have been investigating, advocating and implementing strategies that reduce emissions from the transportation sector and will build on existing transportaton guidance for criteria air pollutants.

The second phase of our option identification task will be to undertake a case study focusing on transportation planning processes in Chicago, Illinois. This area has localized health issues as well as the potential for transportation emissions and run-off to affect the Great Lakes, especially Lake Michigan. In addition, through our past work the Center has developed relationships with a number of local transportation interests including the Center for Neighborhood Technologies and the Metropolitan Planning Council's Campaign for Sensible Growth. This effort will involve discussions with a variety of transportation stakeholders in the Chicago area to get a full understanding of the applicable state and local planning systems, how they operate, and the way in which the planning system might be used to achieve emissions reductions. (See the section on collaboration for more details.)

While we will emphasize opportunities to build on current measures, both nationally and locally, we will also scope out new policy measures that might be used to reduce toxics from the transportation sector.

III. Assessment of Technological Options for Reducing Transportation Sector Toxics

The Center will conduct a survey of existing and new technological options for reducing toxic emissions from the transportation sector. We will investigate the differences in toxic emissions associated with different fuel types and technological measures. We will look at options currently in use as well as those under development. The information will be gathered from internet searches, equipment manufacturers and regulators. Where possible, we will compile information

on performance and cost.

IV. Option Evaluation

We will evaluate the potential effectiveness of the different policy and technological approaches for reducing toxic emissions from the transporation sector. We will look at total emissions reductions as well as changes in the distribution of emissions. In addition, we will evaluate the cost of the various technological measures.

V. Conclusions

Based on the results of our assessment, we will determine which options have the most promise for cost-effectively reducing toxic emissions from the transportation sector and will recommend a plan of action applicable to the city of Chicago and the Great Lakes States.

Project Milestones:	**Dates:**
Project Start	09/2000
Initiate contact with planning officials	09/2000
Complete data collection	12/2000
Option identification & analysis	02/2001
Develop recommendations, draft paper	04/2001
Present initial results to stakeholders	05/2001
Finalize papers, outside presentations	06/2001
Project End	08/2001

☒ Project Addresses Environmental Justice

If So, Description of How:

This project addresses benzo[a]pyrene which is both a persistent and bioaccumulative toxic and an inhalation health hazard. The State of California, for example, has determined that benzo[a]pyrene is a carcinogen. According to ED's chemical scorecard, over 4.2 million people in Illinois are living in areas where the cancer risk due to Polycyclic Organic Matter (POM) exposure, the chemical category that contains benzo[a]pyrene, is greater than one in ten thousand. It is likely that many of the neighborhoods with greatest exposure to POM as a result of high-density traffic are low-income, minority inner-city communities. The Minnesota Pollution Control Agency's November 1999 Staff Paper on Air Toxics suggests that although transportation accounts for just 1% of national PAH emissions, it may account for 50% of urban PAH exposure.

The transportation planning process does not have a good record of addressing environmental justice concerns such as toxic hotspots and inequity of services and siting. In our assessment of opportunities for addressing toxic emissions through transportation planning, we will include an assessment of ways to reduce toxic emissions through local level decisionmaking that could be targeted to high-risk locales. In particular, we anticipate our recommendations will include avenues for enhanced involvement of minorities and the urban poor in planning processes as well as avenues for more effectively considering the environmental consequences of new projects in minority communities.

☒ Project Addresses Education/Outreach

If So, Description of How:

The results of our project will be distributed to environmental groups, transportation planners, and air quality policy-makers through the following means:

- publication on CCAP's web site, http://www.ccap.org
- press release to relevant trade press, including Air Daily
- distribution via relevant Binational Toxics Strategy e-mail and meeting forums
- hard copy to Chicago area stakeholders
- presentation to the Center's State Roundtable and/or Air Quality Dialogue
- presentation to the Chicago Regional Dialogue on Clean Air and Redevelopment
- paper submissions to the Transportation Research Board, the National Association of Regional Councils, and/or the Association of Metropolitan Planning Organizations

Project Budget:

	Federal Share Requested ($)	Applicant's Share ($)
Personnel:	19,431	1,500
Fringe:	7,703	595
Travel:	2,600	0
Equipment:	0	0
Supplies:	0	0
Contracts:	2,000	0
Construction:	0	0
Other:	600	0
Total Direct Costs:	32,334	2,095
Indirect Costs:	17,656	1,363
Total:	49,990	3,458
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

While we are currently pursuing funding for related projects on toxic pollutants, we have not requested funds from other organizations for this transportation-sector scoping effort.

Description of Collaboration/Community Based Support:

This project will entail developing an understanding of state and local transportation planning processes in Chicago, Illinois. To do this we will interview state and local planning officials (for example, transportation and environmental officials) as well as stakeholders who are interested in the effects of transportation planning on human health and air quality. This will include representatives from the EPA Region V, the Illinois EPA, the Northeast Illinois Planning Commission, the Metropolitan Planning Council's Campaign for Sensible Growth, citizen and environmental groups such as the Center for Neighborhood Technology and Citizens for a Better Environment, and community leaders in minority low-income neighborhoods.

In addition to the interviews, described above, the Center will ask a small group of diverse stakeholders from the Chicago area and elsewhere to provide feedback on our policy options and to review our work. We expect to include stakeholders with expertise in science and transportation technology on our review team.

We have discussed our project with Lois Morrison of the Metropolitan Planning Council's Campaign for Sensible Growth who felt that our project would complement the work being done in various local forums. We also spoke with Tom Tseng, the Benzo[a]pyrene workgroup leader from Environment Canada who was eager to involve transportation stakeholders in the workgroup.